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Overview

- Ventilation Design Basics
- Ventilation Changes – 2021 Interim Mechanical Code Amendments
- Ventilation Requirements for Construction Documents
- Summary and Contact Info



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Ventilating Requirements

**Table 18-28-403.3
Ventilating Requirements***

* S = Mechanical Supply; E = Mechanical Exhaust From Room; RO = Relief Opening; NR = No Requirement; NV = Natural Ventilation; Vent opening = percentage of floor area.

Room Purpose	Vent Opening Percent of Floor Area		Mechanical Ventil. CFM/SF		Remarks
	Less Than	Not Less Than	S, Supply	E, Room Exhaust	
Correctional					
Cell rooms	4	4	0 1.2	0 1.2	
Dry Cleaners/Laundries					
Dry Cleaning	4	4	0 1.5	4 4	See 18-28-403.3.3.
Laundries (Residential for less than 30 units)	4	4	0 0	0 1	
Laundries serving general public			1.5	1.5	See 18-28-403.3.3.
Linen Rooms			0.5	0.5	
Education					
Music Rooms		4	0	0	

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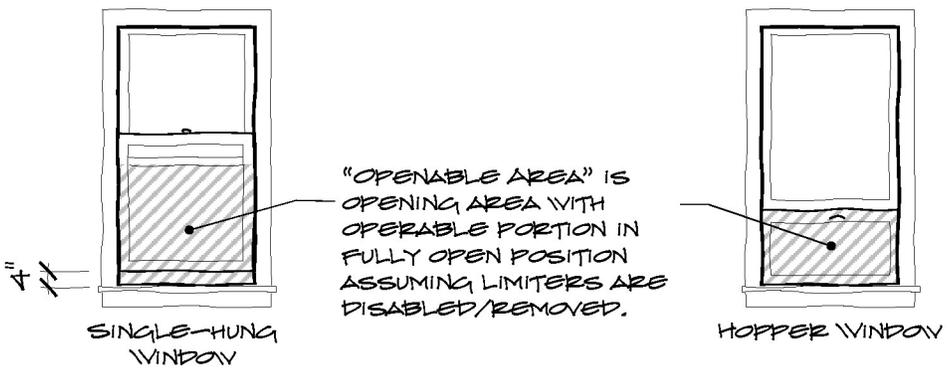
Residential Living, Dining, and Sleeping Rooms

- Residential living, dining and sleeping rooms (70 ft² or larger) require natural ventilation
- Courts and yards for natural ventilation must be dimensioned on drawings
- Borrowed ventilation designs must be detailed and dimensioned to show code compliance



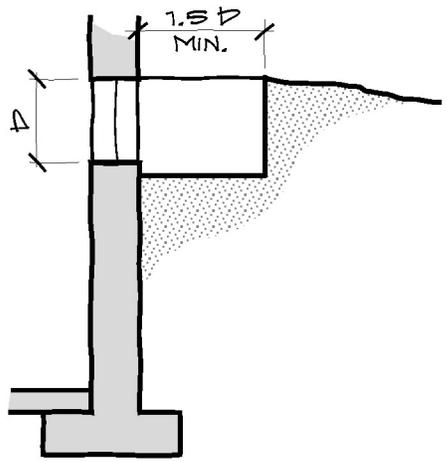
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Natural Ventilation



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Natural Ventilation



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Relief Openings (Private Garages)

- Garage relief openings should be shown and dimensioned on drawings as 1 square foot of free area per car, and not just noted as such (mostly applies to residential).



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Clothes Dryer Venting

- Clothes dryer exhaust vents must be a non-flammable material
- Dryer vents must terminate to the outdoors
- Concealed dryer vents must be rigid metal
- Up to 8' flexible transition duct allowed (not concealed in construction)



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Furnace Installation

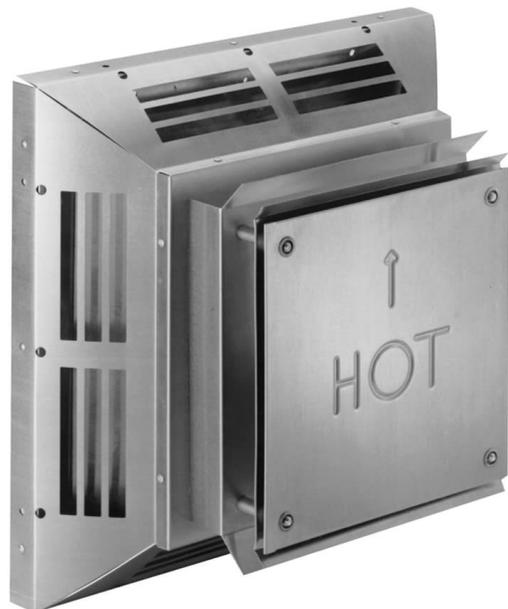
- Warm air furnaces should be installed such that a 90-degree angle between return air and combustion air is provided.



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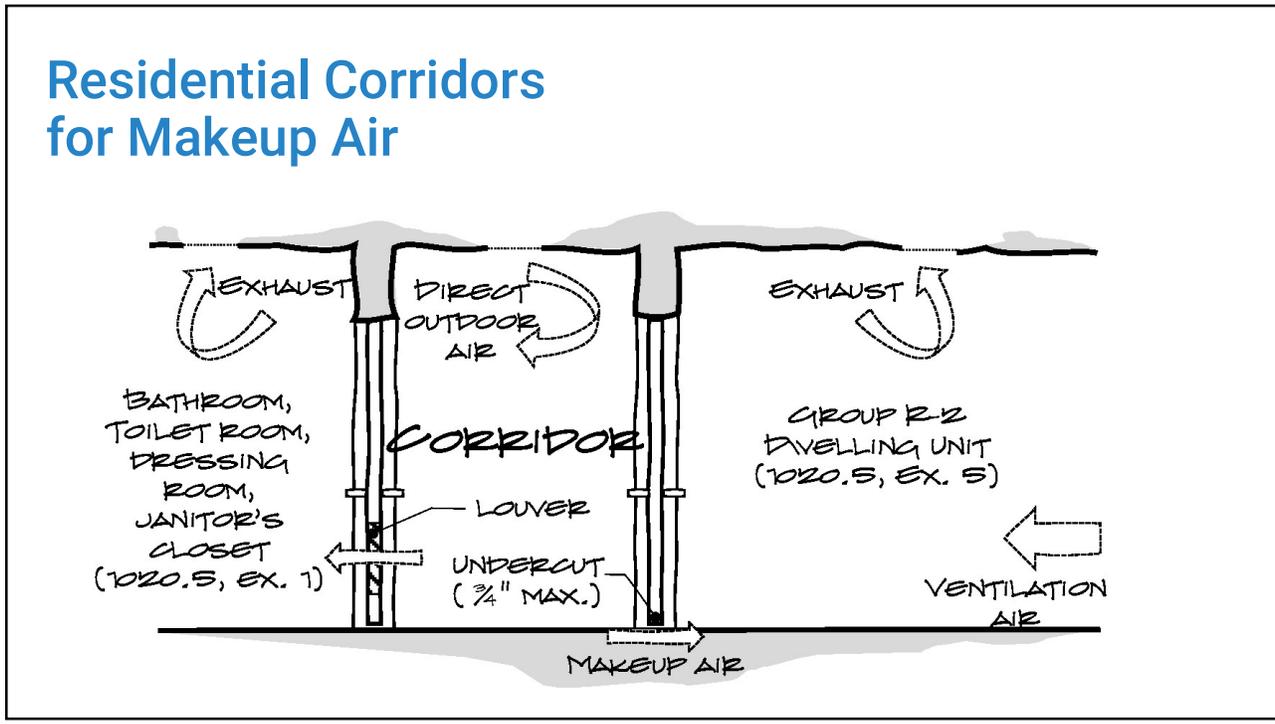
Direct Vent Appliances

- Appliances can be direct vented with a sealed combustion chamber.



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Residential Corridors for Makeup Air



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Outside Air Intake

- Outside air intake louvers for ventilation that terminates in alleys or driveways must be protected.
- Outside air intake louvers should be sized for 100% of code supply.



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Plenums

- Plenums for supply or return should normally be constructed from sheet metal at built-out locations other than under the floor or ceilings.
- Fan housings should be constructed from sheet metal. Alternate materials are allowed for return plenums only.
- Access to fans and motors is required for servicing and maintenance (including permanently lubricated motors with sealed bearings).



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Separation of Intake and Exhaust

- Air intake openings (including required natural ventilation openings) must be at least 15 feet from roof top unit exhaust, exhaust fans, kitchen exhaust, plumbing vents, chimneys or similar exhaust openings.
- This does not apply to intake and exhaust that is part of the same packaged rooftop HVAC unit—the separation designed by the manufacturer is sufficient.

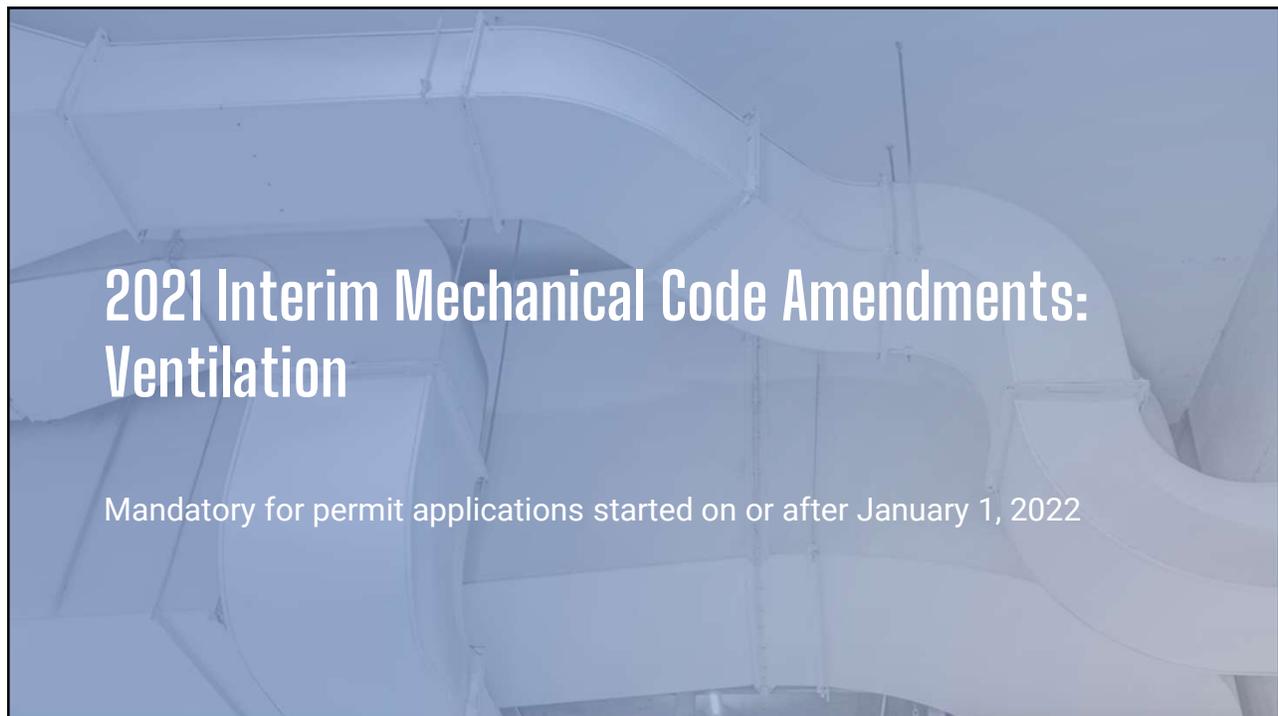


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Economizers

- Where economizer exhaust is provided for ventilation, verification should be provided that exhaust will be available at times other than economizer or free cooling mode.

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18-28-504.1 Installation.

Clothes dryers shall be exhausted in accordance with the manufacturer's instructions. Dryer exhaust systems shall convey the moisture and any products of combustion to the outside of the building.

Exception: This section shall not apply to listed and labeled condensing (ductless) electric clothes drying machines plumbed to drains in accordance with the Chicago Plumbing Code.

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Update requirements for exhaust for domestic cooking appliances.

Recognizes recirculating hoods within dwelling units, consistent with national standards.

Exterior exhaust is still required for commercial-grade appliances.



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New standards for exhaust fans, pollution control units (PCUs), and ventless appliances for commercial kitchens

Criteria for exhaust fans, pollution control units (PCUs), and ventless appliances for use in commercial kitchens.

This will reduce the need for specialized approvals for restaurant exhaust systems.



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18-28-507.2 Where required.

A Type I or Type II hood shall be installed at or above all commercial food heat-processing appliances. A Type II hood shall be installed above commercial dishwashing machines.

Exceptions:

1. Food heat-processing appliances installed within a dwelling unit.
2. Under-counter-type commercial dishwashing machines.
3. For **electric cooking appliances** where an approved testing agency provides documentation that **the appliance effluent contains 5 mg/m³ or less of grease when tested at an exhaust flow rate of 500 cfm (0.236 m³ /s) in accordance with UL 710B.**

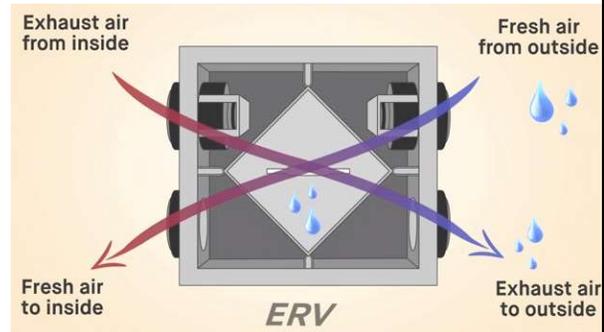
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Recognize energy recovery ventilation (ERV) systems.

Ventilation is required for indoor air quality in newer, better-insulated buildings.

Captures energy contained in exhaust air to pre-condition incoming ventilation air, reducing energy usage.

Facilitates compliance with 2019 Chicago Energy Conservation Code.



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18-28-514.3 Access.

A means of access shall be provided to the heat exchanger and other components of the system as required for service, maintenance, repair or replacement.

18-28-514.4 Recirculated air.

Air conveyed within energy recovery ventilation systems shall not be considered as recirculated air where the energy recovery ventilation system is constructed to limit cross-leakage between air streams to less than 10 percent of the total airflow design capacity.

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Heating Data

HEATING DATA WORKSHEET
(Based on Ordinance Requirements)

Index (or) Room No.	Use of Space	Basis of Heat Loss Calculation	Actual	Ordinance Requirements	Actual
			B.T.U.H. Heat Loss	Supply C.F.M. At 175° F	Supply C.F.M. At 175° F
TOTAL			_____	_____	_____

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Equipment Schedule

EQUIPMENT SCHEDULE

Furnace Manufacture _____ Location _____
 Input BTU's _____ Output BTU's _____ CFM's _____
 Flu Size Type _____ Combustion Air _____

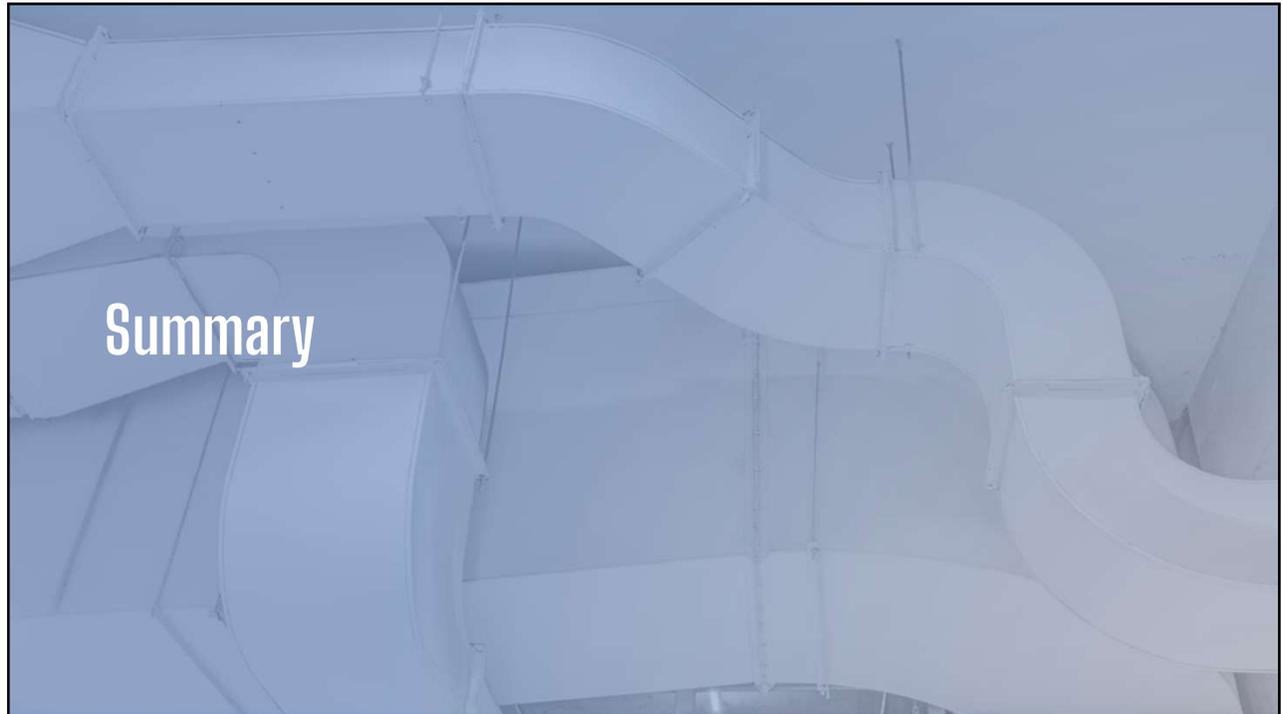
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HVAC Notes

- All ductwork to be galvanized sheet metal.
- Provide locking type dampers to be installed in all supply branches.
- Floor registers shall not exceed 9" from the wall.
- Interior spaces shall be provided with space heating system capable of maintaining an indoor temperature of not less than 68°F at a point 3 feet above the floor when the outdoor temperature is -7°F.
- Provide C.O. detectors.
- Noise level not to exceed 55 dB



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Summary

- Review the ventilation requirements for each project.
- Provide required ventilation, heat, HVAC and equipment data with construction documents.
- Follow the guidelines discussed for important issues where they apply.

**Feel free to call with questions
at 312-744-7563**

